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REPUBLIC OF SOUTH AFRICA

EPARTEMENT VAN HANDEL
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10/519139

10/10/03

Certificate

PATENT OFFICE
REPUBLIEK VAN SUID-AFRIKA

DEPARTMENT OF TRADE AND
INDUSTRY

Hiermee word gesertifiseer dat
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1B03/2821

RECD 17 OCT 2003
WIPO PCT

the documents attached hereto are true copies of
the Forms P2, P6, provisional specification and
drawings of South African Patent Application No.
2002/6585 in the name of ANDERSON, MICHAEL
STUART

Filed : 16 August 2002

Entitled : Padlock

Geteken te
Signed at

PRETORIA

in die Republiek van Suid-Afrika, hierdie
in the Republic of South Africa, this

19th

dag van
day of September 2003

**PRIORITY
DOCUMENT**
SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17.1(a) OR (b)

Registratur van Patente

10/10/03

APPLICATION FOR A PATENT

AND ACKNOWLEDGEMENT OF RECEIPT 6.08.02

(Section 30 (1) – Regulation 22)

R 0060.00

HASR 711

NOTIFICATION filed in duplicate

REPUBLIC VAN SUID AFRIKA
S & F REFERENCE

PA133679/P

C. K. F. S. V. Y. V. A. N. G.
S. U. T. I. T. U. T. E. D. 0. 1. 0. 3

OFFICIAL APPLICATION NO.

21

01 2002/6585

FULL NAME(S) OF APPLICANT(S)

71

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ADDRESS(ES) OF APPLICANT(S)

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TITLE OF INVENTION

54

PADLOCK

THE APPLICANT CLAIMS PRIORITY AS SET OUT ON THE ACCOMPANYING FORM P.2. THE EARLIEST PRIORITY CLAIM IS:

COUNTRY: NIL

NUMBER: NIL

DATE: NIL

THIS APPLICATION IS FOR A PATENT OF ADDITION TO PATENT APPLICATION NO.

21

01

THIS APPLICATION IS A FRESH APPLICATION IN TERMS OF SECTION 37 AND IS BASED ON APPLICATION NO.

21

01

THIS APPLICATION IS ACCCOMPANIED BY:

- 1. A single copy of a provisional specification of 6 pages.
- 2. Drawings of 1 sheet.
- 3. Publication particulars and abstract (Form P.8 in duplicate).
- 4. A copy of Figure of the drawings (if any) for the abstract.
- 5. Assignment of invention.
- 6. Certified priority document.
- 7. Translation of the priority document.
- 8. Assignment of priority rights.
- 9. A copy of the Form P.2 and the specification of S.A. Patent Application No .
- 10. Declaration and power of attorney on Form P.3.
- 11. Request for ante-dating on Form P.4.
- 12. Request for classification on Form P.9.
- 13. Form P.2 in duplicate.
- 14. Other.

74 ADDRESS FOR SERVICE: SPOOR & FISHER, SANDTON

Dated: 16 August 2002

SPOOR & FISHER
PATENT ATTORNEYS FOR THE APPLICANT(S)

RECEIVED	
REGISTRAR OF PATENTS DESIGNS, TRADE MARKS AND COPYRIGHT	
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REGISTRAR VAN PATENTE, MODELEN, HANDELSMERKE EN D. O. T. E. T.	
REGISTRATEUR VAN PATENTS, MODELES, HANDELSMERKEN EN D. O. T. E. T.	

OFFICIAL APPLICATION		LODGING DATE: PROVISIONAL		ACCEPTANCE DATE		
21	012002/6585	22	16 AUG 2002	47		
INTERNATIONAL CLASSIFICATION		LODGING DATE: COMPLETE		GRANTED DATE		
51		23				
FULL NAME(S) OF APPLICANT(S)/PATENTEE(S)						
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APPLICANTS SUBSTITUTED:		DATE REGISTERED				
71	Anderson, Michael Stuart					02.07.2003
ASSIGNEE(S)		DATE REGISTERED				
71						
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PRIORITY CLAIMED		COUNTRY		NUMBER		
N.B. Use International abbreviation for country (see Schedule 4)		33	NIL	31	NIL	
32		NIL				
TITLE OF INVENTION						
54	PADLOCK					
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ADDRESS FOR SERVICE		S & F REF				
74	SPOOR & FISHER, SANDTON			PA133679/P		
PATENT OF ADDITION NO.		DATE OF ANY CHANGE				
61						
FRESH APPLICATION BASED ON		DATE OF ANY CHANGE				

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978

PROVISIONAL SPECIFICATION

(Section 30(1) – Regulation 27)

OFFICIAL APPLICATION NO.

LODGING DATE

21	01	2002/6585	22	16 AUGUST 2002
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FULL NAMES OF APPLICANTS

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FULL NAMES OF INVENTORS

72	ANDERSON, MICHAEL STUART
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TITLE OF INVENTION

54	PADLOCK
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“PADLOCK”**BACKGROUND TO THE INVENTION**

THIS invention relates to a padlock.

A known padlock marketed under the name ENVOSEAL has a lock body of multi-part, moulded plastics construction and a metal hasp which is generally U-shaped. A first leg of the hasp is held captive in the lock body in such a manner that the hasp can pivot and slide relative to the lock body between respective open and closed positions. When the hasp is in a closed position the end of its second leg locates in an opening in the lock body and a transverse hole in the first leg aligns with a transverse hole in the lock body. A frangible plastic seal is clipped to the lock body such that a part of the seal locates in the aligned holes. This prevents pivotal movement of the hasp from the closed to the open position until such time as the seal is broken and removed. Breakage of the seal indicates that the lock has been tampered with.

Padlocks of this kind are used in many different applications where a tamper-evident seal is required. One example is in airline trolleys used to store duty free goods, alcoholic beverages and the like. Typically, the padlock in such an application is used to lock the door or drawer of the trolley in a closed position.

A drawback of the known padlock described above is that it is expensive to manufacture, partly because individually moulded plastic components have to be assembled about the metal hasp and then connected to one another to hold the hasp leg captive. Another drawback is that the design of the padlock dictates that it must have a fairly substantial thickness. For economy of space and packing airline trolleys have a recess to receive the installed lock but this is often too shallow to accommodate the known lock fully. As a result the lock projects from the trolley and can either present an obstruction or itself be impacted on and possibly damaged.

SUMMARY OF THE INVENTION

According to the invention there is provided a padlock comprising:

- a moulded plastics lock body having therein a passage with two open ends and a blind opening spaced from the passage; and
- a generally U-shaped hasp which has first and second legs, an inner end of the first leg being slidable into the passage through one open end thereof and an inner end of the second leg being slidable simultaneously into the blind opening, the inner end of the first leg having a cavity into which an end of a breakable seal, inserted into the other open end of the passage, can be clipped thereby to lock the hasp relative to the lock body.

Preferably the lock body is of one-piece, moulded plastics construction and has a thickness of 8mm or less.

The invention extends to a padlock combination comprising a padlock as set forth and a breakable seal having an insertion portion which can be clipped into the cavity, when the first leg of the hasp is located in the passage, to lock the hasp relative to the lock body.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in more detail, by way of example only, with reference to the accompanying drawings in which:

Figure 1 illustrates a padlock and lock combination according to the invention in an unlocked condition;

Figure 2 illustrates the same lock and combination in a locked condition;

Figure 3 shows a cross-sectional view of the lock and combination in the locked position;

Figure 4 shows a cross-section at the line 4-4 in Figure 3;

Figure 5 shows a perspective view of the seal of the lock combination; and

Figure 6 shows a cross-section at the line 6-6 in Figure 5.

DESCRIPTION OF A PREFERRED EMBODIMENT

Figure 1 illustrates a padlock 10 and a padlock combination 12 according to the present invention. The padlock 10 consists of a lock body 14 and a hasp 16. The padlock combination 12 consists of the padlock 10 and a seal 20.

The lock body 14 is a one-piece plastics moulding. It has a passage 22 extending through it from one open end 23 to an opposite open end 25. At the mouth of the open end 25 the passage includes a shoulder 24. Beyond the end 25 the lock body is formed with a generally rectangular recess 27. The lock body 14 also has a blind opening 26 spaced from and parallel to the passage. Relatively large and relatively small holes 28 and 30 respectively extend transversely through the lock body

The hasp 16 is of 2mm thick flat mild steel and has the shape seen in figure 1. It is generally of U-shape with first and second legs 32 and 34 respectively, the leg 32 being somewhat longer than the leg 32. The end 34.1 of the leg 34 is dimensioned to be a snug slide fit in the blind opening 26.

The end 32.1 of the leg 32 is enlarged and is a slide fit in the passage 22. It also includes a shoulder 32.2 adjacent the end 32.1. The end 32.1 is formed with a cavity 36 which is undercut by virtue of opposing, re-entrant tabs 38.

The seal 20, which, together with the padlock 10, makes up the padlock combination 12 of the invention, is made as a one-piece plastics moulding. It includes a tab 20.1 from which an insertion portion 20.2 projects. The insertion portion has a central stem 20.3 and resilient arms 20.4 projecting rearwardly from the stem.

In order to close the padlock, the hasp 16 is aligned with the lock body 14 as shown in Figure 1. The hasp and lock body are then moved relative to one another so that the legs 32 and 34 enter and slide into the passage 22 and opening 26 respectively. When the hasp is fully inserted the end 34.1 of the leg 34 abuts the blind end of the opening 26, the shoulder 32.2 on the hasp abuts the mouth of the passage and the end 32.1 of the leg 32 abuts the shoulder 24, as shown in Figure 2.

In order to seal the lock the seal 20 is positioned in the recess 27 and is slid, in direction opposite to that in which the hasp is inserted, into the opposite end of the passage 22. When the arms 20.4 of the insertion portion 20.2 encounter the tabs 38 they are inwardly deflected. When the insertion portion is fully inserted the arms move past the tabs and thereafter, with the insertion portion fully located in the cavity 36, spring back to locate behind the tabs. The insertion portion is accordingly clipped into the cavity 36 in the passage 22, with the tab 20.1 lying flat in the recess 27.

It will be understood that with insertion portion 20.2 of the seal clipped into the cavity 36 inside the passage 22, the hasp is effectively locked to the lock body. In order to open the padlock, it is necessary to break the seal 20.

This is achieved by bending the tab 20.1 in a direction out of the recess 27, as indicated in Figure 4 by the arrow 44, so that the seal breaks at a zone of reduced thickness 20.5 between the tab and insertion portion. Once the tab has been broken off, the hasp can be withdrawn from the lock body and the insertion portion can be removed from the cavity 36.

Referring to Figures 5 and 6 it will be seen that the tab 20.1 forms a recessed, upstanding wall 20.6 adjacent the root of the stem 20.3. When the insertion portion 20.2 of the seal is clipped into the cavity 36, the wall recess receives portions of the tabs 38 so that the wall lies closely adjacent those tabs. With this feature it is difficult if not impossible to insert a sharp tool past the tab 20.1 and into the passage 22 in order to unclip the insertion portion 20.2 from the cavity 36, thereby improving the integrity of the seal.

In an application of the padlock and padlock combination to, for instance, an airline trolley, the hasp will be arranged in the normal way to pass through openings in the components of the trolley which are to be locked to one another, eg the frame of the trolley and a door or drawer. It will also be understood that in such applications, a visual inspection of the seal to ensure that it is not broken provides an assurance that the trolley has not been opened without authorisation prior to being brought onto the aircraft.

The large hole 28 provides a suspension point at which the padlock, once unlocked, can be suspended from a hook or the like for re-use at a later stage with a new seal 20.

The hasp 16 is formed with a small hole 50. This hole and the small hole 30 in the lock body provide attachment points for the ends of a thin cord 52 which serves to attach the hasp to the lock body, to prevent inadvertant loss of the hasp.

2002/6585

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DATED THIS 16th DAY OF AUGUST 2002

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SPOOR & FISHER
APPLICANT'S PATENT ATTORNEYS

2002/6585

